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Patent Claims

5 1. A device for controlling an engine (1) and/or
transmission (2) having a control device (3, 4, 24, 25)
which is arranged remotely from the engine/transmission
(1, 2) and which provides the open-loop and closed-loop
control algorithms, and a unit which is electrically
10 conductively connected directly to a plurality of
sensors (12, 18) and which is attached to the
engine/transmission (1, 2), wherein the unit has an A/D
converter for converting the sensor signals originating
from the sensors (12, 18) into digital sensor signals,
15 and the digital sensor signals are converted into data
bus signals by means of a signal converter and fed into
a data bus (8, 20, 21) by means of a data bus
transceiver unit (10, 11, 15, 16) in order to be able
to communicate via the data bus (8, 20, 21) between the
20 unit and the control device (3, 4, 24, 25) which is
arranged remotely therefrom, characterized in that a
plurality of control devices (3, 4, 24, 25) are
interconnected to one another via a first data bus (5)
and are each provided with a uniform data bus
25 transceiver unit (10, 11, 15, 16) to which an assembly
data bus (8, 20, 21) is additionally connected, in that
the unit is embodied as an assembly-specific
sensor/actuator interface (9, 17, 22, 23) with a
plurality of parallel connections for the sensors (12,
30 18) and a connection for the assembly data bus (8, 20,
21), in that a signal converter is provided for
converting the digital sensor signals of a plurality of
sensors (12, 18) into the data bus signal so that in
embodiments of the device for different assembly
35 variants with different sensors (12, 18) the same
control device (3, 4, 24, 25) can be used without
hardware modification of its sensor connection, in that

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the signal converter converts the sensor signals directly into the data bus signals without intermediate connection of a calculating means corresponding to an open-loop/closed-loop control algorithm, and in that
5 the sensor/actuator interface (9, 17, 22, 23) is designed for series traffic means with a plurality of engine/transmission variants in at least two embodiments which differ in the number of sensor connections provided.

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2. The device as claimed in claim 1, characterized in that actuators (13, 19) can be additionally connected to the sensor/actuator interface (9, 17, 22, 23), wherein the control data which is input via the
15 assembly data bus (8, 20, 21), for the actuator or actuators (13, 19) is converted into digital control data for the individual actuator (13 or 19) so that the actuators (13, 19) can be actuated via the assigned sensor/actuator connections.

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3. The device as claimed in claim 1, characterized in that the sensor/actuator interface (9, 17, 22, 23) carries out checking of the sensor signals with respect to the predefined value range and/or standardization of
25 the signals to a predefined numerical range.

4. The device as claimed in claim 1 or 2, characterized in that the sensor/actuator interface (9, 17, 22, 23) has a storage means in which the digital
30 sensor signals can be buffered, and in that the data bus transceiver unit (10, 11, 15, 16) can read out the digital sensor signals from the storage means and converts them into data bus signals.

35 5. The device as claimed in one of claims 1 to 4, characterized in that the same data bus protocol is provided for use with a plurality of different

embodiments of the device with a different number of sensors/actuators (12, 13, 18, 19) in comparison with the control device (3, 4, 24, 25) which is arranged remotely.

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6. The device as claimed in one of claims 1 to 5, characterized in that for certain production vehicles some of the sensor/actuator connections of the sensor/actuator interface (9, 17, 22, 23) are not

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assigned.